

STORAGE

FAQ

Q My network attached storage (NAS) device uses a RAID array. If one of the hard disks fails, can I open the case and replace it myself?

A Not all NAS devices (or external RAID enclosures that connect directly to your computer using interfaces such as USB) are designed to be easily opened and serviced. You may even invalidate your warranty if you attempt to do so, and it's best to check with the manufacturer first.

Most manufacturers will insist that you return the entire array for servicing but won't guarantee successful data recovery. Configure your device as RAID 1 or RAID 5 instead of RAID 0 so that your data can still be copied to another device in the event of a disk failure.

If you must have the ability to rebuild a RAID array yourself, choose a NAS or external RAID enclosure designed with user-removable drive trays.

Alan Lu

PC systems and storage expert

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LITEON Super AllWrite LH-20A1S

★★★★

£32 inc VAT



SAMSUNG Super Writemaster SH-S183L

★★★★

£28 inc VAT



Although in theory the SATA interface for optical drives and hard disks is faster than PATA, our tests of two of the latest SATA DVD writers, Samsung's Super Writemaster SH-S183L and LiteOn's Super AllWrite LH-20A1S, show only modest speed gains at best.

The Super AllWrite is rated at 20X for writing single-layer DVDs, but it managed less than half this speed in our tests. It couldn't match its claimed 8X

write speed for double-layer DVDs either, but it was one of the fastest writers we've seen for DVD-R DL discs.

The Super AllWrite comes with an excellent bundle that includes a SATA data cable, mounting screws and some alternative coloured fascias.

In contrast, the Super Writemaster comes without any extras, as it's a barebones OEM product. Unlike the Super AllWrite it can burn labels on compatible LightScribe discs. Even though it's rated at only 18X for writing single-layer DVDs, it was actually faster than the 20X Super AllWrite and produced one of the fastest single-layer writing speeds we've seen. We were less impressed with the Super Writemaster's two-layer writing speeds, though.

It's hard to recommend either drive completely. The Super AllWrite has an excellent software and accessories bundle and is fast at writing dual-layer DVDs, but otherwise its performance is disappointing. The Super Writemaster is notably quick at writing single-layer DVDs but comes without any software.

Unless you absolutely must use a SATA port for your DVD writer, we'd recommend Samsung's PATA Super Writemaster SH-S182M instead (see 'Also Consider...'). Its performance closely matches the SH-S183L's but it comes with Nero Recode and is cheaper than both the drives reviewed here.

Alan Lu

LITEON SUMMARY

- ✓ Good software bundle
- ✓ Fast dual-layer DVD writing
- ✗ Otherwise disappointing

INTERNAL DVD WRITER 20X DVD-R, 20X DVD+R, 6X DVD-RW, 8X DVD+RW, 8X DVD-R DL, 8X DVD+R DL, 12X DVD-RAM, 48X CD-R, 32X CD-RW
PART CODE LH-20A1S-11C
SUPPLIER www.scan.co.uk
DETAILS www.liteonit.eu

PERFORMANCE (see page 58)



SAMSUNG SUMMARY

- ✓ Fast single-layer DVD writing
- ✗ Slower two-layer performance
- ✗ PATA version is better value

INTERNAL DVD WRITER 18X DVD-R, 18X DVD+R, 6X DVD-RW, 8X DVD+RW, 8X DVD-R DL, 8X DVD+R DL, 12X DVD-RAM, 48X CD-R, 32X CD-RW
PART CODE SH-S183L/BEBN
SUPPLIER www.pcwb.com
DETAILS www.samsungoms-europe.com

PERFORMANCE (see page 58)



Also consider...

CRUCIAL 1GB Gizmo! Overdrive

★★★★★

£12 inc VAT

PRICE CUT!



USB flash drives tend to be much slower than hard disks, but Crucial's 1GB Gizmo!

Overdrive can write files at 13MB/s and read them at 25MB/s. It wasn't as quick at reading small files, but at 10.65MB/s it is still faster than most. It was particularly slow only when writing small files, where it managed a speed of just 0.37MB/s.

The Overdrive is faster than most other flash drives, but it costs less than £15 including shipping, making it great value.

USB FLASH DRIVE 1GB capacity (973MB formatted), USB Hi-Speed
PART CODE CT1GBUFDWH00
SUPPLIER Crucial 0800 013 0330
DETAILS www.crucial.com/uk
✓ Good performance; cheap
FULL REVIEW Feb 07



MAXTOR Shared Storage II 1TB

★★★★★

£400 inc VAT



Maxtor's Shared Storage II has an enormous capacity of 1TB, and it costs only 46p per gigabyte. As it contains two hard disks, you can choose to configure it as a RAID 0 or as a RAID 1 array.

The Shared Storage may not be the fastest network storage device we've seen, but its low price, RAID support and UPnP media server make it a great buy.

NETWORK-STORAGE DEVICE
1TB hard disk, 928GB formatted capacity, 10/100/1,000Mbit/s network connection, 2x USB ports, UPnP media, iTunes, print, USB disk servers
PART CODE N14R010
SUPPLIER www.play.com
DETAILS www.maxtorsolutions.com
✓ Low cost per gigabyte; easy to configure; RAID 1 support
FULL REVIEW May 2007



HITACHI Deskstar 7K1000 1TB

★★★★

£250 inc VAT



Hitachi's one-terabyte internal SATA hard disk is the largest we've seen so far, and is capable of storing around 140 uncompressed DVD movies.

We were impressed by how quickly it sped through our file transfer tests, achieving some of the fastest scores we've seen from a 7,200rpm internal hard disk. It's capable of reading and writing large files at speed and writing small files quickly. Its only weakness is in reading small files, where it managed a sluggish 18.52MB/s.

Although the Deskstar has a reasonably low cost per gigabyte of 27p, you could buy two 500GB SATA hard disks for £100 less and configure them in a RAID array. Unless you lack the drive bays or the time to set up a RAID array, the two-disk route is a much cheaper way of adding a terabyte of storage to your PC.

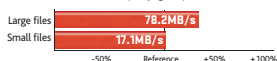
Alan Lu

SUMMARY

- ✓ Huge capacity
- ✓ Excellent overall performance
- ✗ Two 50GB disks are cheaper

INTERNAL HARD DISK 1TB capacity, 930GB formatted capacity (NTFS), SATA 300 interface, 7,200rpm spindle speed, 32MB cache
PART CODE HDS721010KLA330
SUPPLIER www.pcworld.co.uk
DETAILS www.hitachigst.com

PERFORMANCE (see page 58)



AKASA Integral P2 2.5in combo enclosure

★★★★

£25 inc VAT



If you've recently replaced your notebook's PATA hard disk, you can use your old one as an external FireWire and USB disk by fitting it in Akasa's Integral P2 hard disk enclosure.

Installation isn't hard, although loosening the small screws can be tricky. You should have no trouble connecting the P2 to any USB or FireWire port, though, as a four-pin to six-pin FireWire adaptor and 5V-to-USB power cable are provided.

We fitted the P2 with a 100GB 2.5in Hitachi PATA disk and, as our results show, it performed well over FireWire. While its performance reading files over USB was in line what we'd expect, it was very slow when writing files. It wrote large files at 5.43MB/s and small files at 0.64MB/s.

The Integral P2 is attractive, sturdy and inexpensive, but unless you stick with FireWire, its poor USB write performance rules it out.

Alan Lu

SUMMARY

- ✓ Attractive and sturdy
- ✓ Useful accessories
- ✗ Slow USB write speeds

PATA HARD DISK ENCLOSURE Takes one 2.5in PATA hard disk, USB Hi-Speed, FireWire 400
PART CODE AK-ENP2C8-SL
SUPPLIER www.pixmania.co.uk
DETAILS www.akasa.co.uk

PERFORMANCE (see page 58)



CHOOSING A... NAS Device

Follow the steps to find your ideal specs

CAPACITY: 250GB

INTERFACE: 100/1,000Mbit/s Ethernet

Recommended minimum in grey

1 A basic Network Attached Storage (NAS) device with the specifications above will cost around £100. It has only a single hard disk, so you'll need to make backups to protect your data, and you can't upgrade its storage capacity.

Its Gigabit Ethernet interface means that it transfers data quickly, although to use it at this speed, you'll need computers with Gigabit Ethernet network adaptors and a Gigabit Ethernet switch or router. Computers with 10/100 adaptors will still be able to access the NAS device, but at just 100Mbit/s.

2 The amount of network storage you need depends on the types of files you use. If you want to store Word and Excel documents, for example, a 250GB device will be more than enough. If you intend to hoard DVD-quality video, on the other hand, you'll need much more. A single uncompressed DVD image can represent up to 8.5GB of data so even a modest media collection will require around 500GB of storage space.

3 If you can see no end to your storage needs, consider buying an upgradeable NAS device. Many have a USB port so you can add a second external disk. Devices with spare disk trays allow for cheaper and faster upgrades in the future.

4 If you want extra protection for your data, look for a device that supports RAID. A RAID 1 or RAID 5 array reduces the available capacity, but if one disk fails then your data remains safe (see *Upgrade Workshop, Shopper*, November 2006 for more information).

5 If you need access to your files while you're away from home or the office, look for a NAS with an FTP server. Some NAS devices can share a USB printer across your network saving you the expense of a buying an Ethernet printer. A NAS device with a Universal Plug and Play (UPnP) media server can stream your music, photos and videos to a network media player, so you can enjoy your media collection in another room.

SAMSUNG Super Writemaster SH-S182M

★★★★★

£28 inc VAT

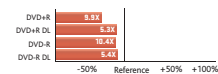


The Super Writemaster from Samsung

proved to be one of the speediest internal burners we've seen when creating single-layer DVDs. It includes Nero's Recode software, which allows you to squeeze a two-layer DVD movie on to a single-layer DVD.

At such a low price, the Writemaster is a bargain.

INTERNAL DVD WRITER 18X DVD-R, 18X DVD+R, 6X DVD-RW, 8X DVD+RW, 8X DVD-R DL, 8X DVD+R DL, 12X DVD-RAM, 48X CD-R, 32X CD-RW
PART CODE SH-S182M/RSMN
SUPPLIER www.amazon.co.uk
DETAILS www.samsunggodd.com/eng ✓ Speedy single-layer DVD writing ✗ Slow two-layer DVD performance
FULL REVIEW Apr 2007



SAMSUNG SpinPoint T166-HD501LJ

★★★★★

£75 inc VAT



Samsung's 500GB SATA hard

disk is a great choice if you need more space for programs, movies, music, photos and documents. It costs only 16p per gigabyte, but it's the fastest 7,200rpm SATA internal hard disk we've seen so far. It's an amazingly quick drive and great value, too.



3.5in INTERNAL HARD DISK 500GB capacity, 465GB formatted capacity (NTFS), SATA 300 interface, 7,200rpm spindle speed, 16MB cache PART CODE HD501LJ SUPPLIER www.scan.co.uk DETAILS www.samsung.com ✓ Very fast; low cost per gigabyte
FULL REVIEW Jul 07

